

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) Publication number:

0 629 412 A3

(12)

EUROPEAN PATENT APPLICATION(21) Application number: **94105896.8**(51) Int. Cl.⁶: **A61M 1/10, A61M 1/12,
F16C 33/10**(22) Date of filing: **15.04.94**(30) Priority: **03.06.93 JP 157993/93**(43) Date of publication of application:
21.12.94 Bulletin 94/51(84) Designated Contracting States:
DE FR GB(88) Date of deferred publication of the search report:
29.03.95 Bulletin 95/13

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(54) Auxiliary artificial heart embedded in a ventricle of a heart.

(57) An artificial heart has a driving section (5) and a pump section (4), and a sealing section (31) forming a seal for a driving shaft extending from the driving section (5) for driving the pump section (4). A sealing liquid chamber (30) filled with a sealing liquid is formed around the driving shaft (26) between the

sealing mechanism (31) and the driving section (5). The sealing liquid in the sealing liquid chamber (30) maintains the sealing mechanism (31) in a liquid-tight state and lubricates the sealing mechanism (31), whereby blood is prevented from entering the driving section (5). Even if blood happens to enter

the sealing liquid chamber (30), the blood is mixed with the sealing liquid and does not coagulate. Thus,

the operation of the artificial heart is not suppressed.

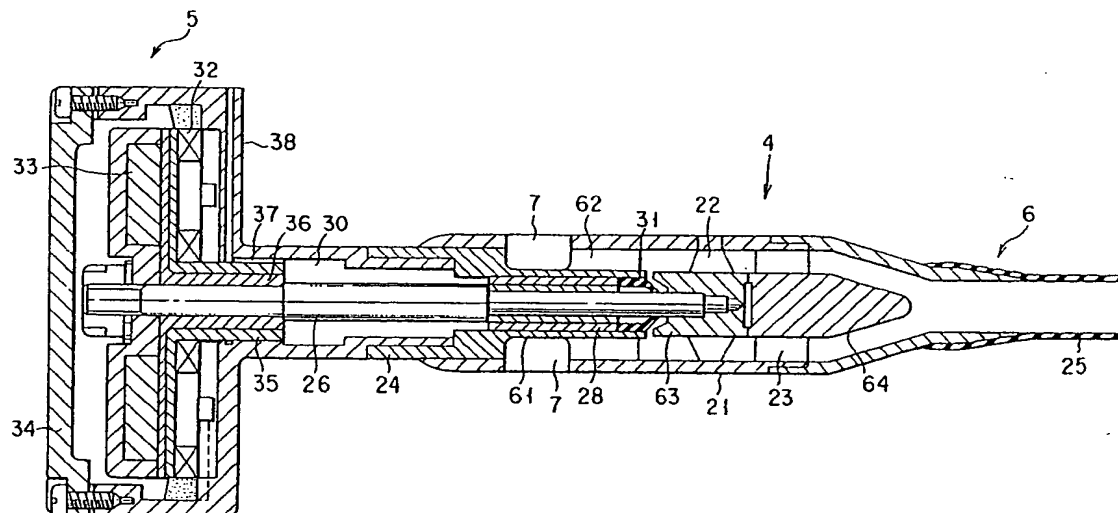


FIG. 2



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EUROPEAN SEARCH REPORT

Application Number
EP 94 10 5896

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
Y	EP-A-0 445 782 (MISUZU INDUSTRIES CORPORATION) * column 4, line 10 - column 5, line 26 * * figure 1 * ---	1,2,5,12	A61M1/10 A61M1/12 F16C33/10
Y	US-A-4 927 407 (DORMAN) * column 4, line 6 - column 7, line 42 * * figures 2,3 *	1,2,5,12	
A	---	13	
A	US-A-5 118 264 (SMITH) * column 4, line 5 - line 36 * * column 5, line 30 - column 6, line 36 * * figures 1,4,7 * ---	12,14	
A	EP-A-0 410 293 (EBARA CORPORATION) * column 6, line 53 - column 7, line 18 * * column 7, line 47 - column 8, line 51 * * column 10, line 46 - column 11, line 30 * * figures 1-3 *	6-11	
A	EP-A-0 240 674 (EBARA RESEARCH CO., LTD.) * abstract * -----	6-8	TECHNICAL FIELDS SEARCHED (Int.Cl.5) A61M F16C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 22 August 1994	Examiner SCHOENLEBEN J.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid,
namely claims:
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions,
namely:

See sheet -B-

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid,
namely claims:
- ☒ None of the further search fees has been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims.
namely claims: 1-3, 5-14



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EP 94 10 5896 -B-

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims 1,2,3,5-14: Artificial heart comprising a sealing liquid chamber and sealing means
2. Claims 1,4 : Artificial heart comprising a sealing liquid chamber and a coating film on blood contact surfaces